



6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R07-OAR-2017-0416; FRL-9966-60-Region 7]

Approval of Iowa's Air Quality Implementation Plan; Muscatine Sulfur Dioxide Nonattainment Area

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing to approve the State Implementation Plan (SIP) revision, which the State of Iowa (the state) submitted to the EPA on May 26, 2016, for attaining the 1-hour sulfur dioxide (SO₂) primary National Ambient Air Quality Standard (NAAQS) for the Muscatine nonattainment area. This plan (herein called a "nonattainment plan") includes the state's attainment demonstration and other elements required under Clean Air Act (CAA) sections 172, 191, and 192. In addition to an attainment demonstration, the plan addresses the requirement for meeting reasonable further progress (RFP) toward attainment of the NAAQS, reasonably available control measures and reasonably available control technology (RACT/RACM), base-year and projection-year emission inventories, and contingency measures. The EPA proposes to conclude that the state has appropriately demonstrated that the

plan provisions provide for attainment of the 2010 1-hour primary SO₂ NAAQS in the Muscatine nonattainment area by the applicable attainment date and that the plan meets the other applicable requirements under CAA sections 172, 191, and 192.

DATES: Comments must be received on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA-R07-OAR-2017-0416 to <https://www.regulations.gov>. Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from Regulations.gov. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (i.e. on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit <https://www2.epa.gov/dockets/commenting-epa-dockets>.

FOR FURTHER INFORMATION, CONTACT: Tracey Casburn, Environmental Protection Agency, Air Planning and Development Branch, 11201 Renner Boulevard, Lenexa, Kansas 66219 at (913) 551-7016, or by email at casburn.tracey@epa.gov.

SUPPLEMENTARY INFORMATION: Throughout this document whenever "we," "us," and "our" is used, we mean the EPA.

Organization of this document. The following outline is provided to aid in locating information in this preamble.

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I. Why Was Iowa Required to Submit an SO₂ Plan for the Muscatine Area?

On June 22, 2010, the EPA promulgated a new 1-hour primary SO₂ NAAQS of 75 parts per billion (ppb), which is met at an ambient air quality monitoring site when the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations does not exceed 75 ppb, as determined in accordance with appendix T of 40 CFR part 50. See 75 FR 35520, codified at 40 CFR 50.17(a)-(b). On August 5, 2013, the EPA designated 29 areas of the country as nonattainment for the 2010 SO₂ NAAQS, including the Muscatine area in the State of Iowa. See 78 FR 47191, codified at 40 CFR part 81, subpart C. These area designations were effective October 4, 2013. Section 191 of the CAA directs states to submit SIPs for areas designated as nonattainment for the SO₂ NAAQS to the EPA within 18 months of the effective date of the designation, i.e., by no later than April 4, 2015. These SIPs must demonstrate that the respective areas will attain the NAAQS as expeditiously as practicable, but no later than 5 years from the effective date of designation, which is October 4, 2018.

On March 18, 2016, the EPA published an action that the State of Iowa failed to submit the required SO₂ nonattainment plan for the Muscatine area by the SIP submittal deadline. See 81 FR 14736. This finding initiated a deadline under CAA

section 179(a) for the potential imposition of new source and highway funding sanctions. However, pursuant to Iowa's submittal of May 26, 2016, and the SIP becoming complete by operation of law on November 26, 2016, the sanctions under section 179(a) will not be imposed. Additionally, under CAA section 110(c), the finding triggers a requirement that the EPA promulgate a Federal Implementation Plan (FIP) within two years of the finding unless, by that time (a) the state has made the necessary complete submittal and (b) EPA has approved the submittal as meeting applicable requirements. This FIP obligation will not apply if EPA makes final the approval action proposed here by March 18, 2018.

The remainder of this preamble describes the requirements that nonattainment SIPs must meet in order to obtain EPA approval, provides a review of the state's plan with respect to these requirements, and describes the EPA's proposed action on the plan.

II. Requirements for SO₂ Nonattainment Area Plans

Nonattainment SIPs must meet the applicable requirements of the CAA, and specifically CAA sections 172, 191 and 192. The EPA's regulations governing nonattainment SIPs are set forth at 40 CFR part 51, with specific procedural requirements and control strategy requirements residing at subparts F and G, respectively. Soon after Congress enacted the 1990 Amendments to

the CAA, EPA issued comprehensive guidance on SIPs, in a document entitled the "General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990," published at 57 FR 13498 (April 16, 1992) (General Preamble). Among other things, the General Preamble addressed SO₂ SIPs and fundamental principles for SIP control strategies. *Id.*, at 13545-49, 13567-68. On April 23, 2014, the EPA issued recommended guidance for meeting the statutory requirements in SO₂ SIPs, in a document entitled, "Guidance for 1-Hour SO₂ Nonattainment Area SIP Submissions," (April 2014 guidance) available at https://www.epa.gov/sites/production/files/2016-06/documents/20140423guidance_nonattainment_sip.pdf. In this guidance the EPA described the statutory requirements for a complete nonattainment area SIP, which includes: an accurate emissions inventory of current emissions for all sources of SO₂ within the nonattainment area; an attainment demonstration; demonstration of RFP; implementation of RACM (including RACT); new source review (NSR) and, adequate contingency measures for the affected area.

In order for the EPA to fully approve a SIP as meeting the requirements of CAA sections 110, 172 and 191-192 and EPA's regulations at 40 CFR part 51, the SIP for the affected area needs to demonstrate to EPA's satisfaction that each of the

aforementioned requirements have been met. Under CAA sections 110(1) and 193, the EPA may not approve a SIP that would interfere with any applicable requirement concerning NAAQS attainment and RFP, or any other applicable requirement, and no requirement in effect (or required to be adopted by an order, settlement, agreement, or plan in effect before November 15, 1990) in any area which is a nonattainment area for any air pollutant, may be modified in any manner unless it insures equivalent or greater emission reductions of such air pollutant.

III. Attainment Demonstration and Longer Term Averaging

CAA section 172(c)(1) directs states with areas designated as nonattainment to demonstrate that the submitted plan provides for attainment of the NAAQS. 40 CFR part 51, subpart G further delineates the control strategy requirements that SIPs must meet, and EPA has long required that all SIPs and control strategies reflect four fundamental principles of quantification, enforceability, replicability, and accountability. General Preamble, at 13567-68. SO₂ attainment plans must consist of two components: (1) emission limits and other control measures that assure implementation of permanent, enforceable and necessary emission controls, and (2) a modeling analysis which meets the requirements of 40 CFR part 51, appendix W which demonstrates that these emission limits and

control measures provide for timely attainment of the primary SO₂ NAAQS as expeditiously as practicable, but by no later than the attainment date for the affected area. In all cases, the emission limits and control measures must be accompanied by appropriate methods and conditions to determine compliance with the respective emission limits and control measures and must be quantifiable (i.e., a specific amount of emission reduction can be ascribed to the measures), fully enforceable (specifying clear, unambiguous and measureable requirements for which compliance can be practicably determined), replicable (the procedures for determining compliance are sufficiently specific and non-subjective so that two independent entities applying the procedures would obtain the same result), and accountable (source specific limits must be permanent and must reflect the assumptions used in the SIP demonstrations).

The EPA's April 2014 guidance recommends that the emission limits be expressed as short-term average limits (e.g., addressing emissions averaged over one or three hours), but also describes the option to utilize emission limits with longer averaging times of up to 30 days so long as the state meets various suggested criteria. See 2014 guidance, pp. 22 to 39. The guidance recommends that—should states and sources utilize longer averaging times—the longer term average limit should be set at an adjusted level that reflects a stringency comparable

to the 1-hour average limit at the critical emission value shown to provide for attainment that the plan otherwise would have set.

The April 2014 guidance provides an extensive discussion of the EPA's rationale for concluding that appropriately set comparably stringent limitations based on averaging times as long as 30 days can be found to provide for attainment of the 2010 SO₂ NAAQS. In evaluating this option, the EPA considered the nature of the standard, conducted detailed analyses of the impact of use of 30-day average limits on the prospects for attaining the standard, and carefully reviewed how best to achieve an appropriate balance among the various factors that warrant consideration in judging whether a state's plan provides for attainment. *Id.* at pp. 22 to 39. See also *id.* at Appendices B, C, and D.

As specified in 40 CFR 50.17(b), the 1-hour primary SO₂ NAAQS is met at an ambient air quality monitoring site when the 3-year average of the annual 99th percentile of daily maximum 1-hour concentrations is less than or equal to 75 parts per billion. In a year with 365 days of valid monitoring data, the 99th percentile would be the fourth highest daily maximum 1-hour value. The 2010 SO₂ NAAQS, including this form of determining

compliance with the standard, was upheld by the U.S. Court of Appeals for the District of Columbia Circuit in Nat'l Env't'l Dev. Ass'n's Clean Air Project v. EPA, 686 F.3d 803 (D.C. Cir. 2012). Because the standard has this form, a single exceedance does not create a violation of the standard. Instead, at issue is whether a source operating in compliance with a properly set longer term average could cause exceedances, and if so the resulting frequency and magnitude of such exceedances, and in particular whether the EPA can have reasonable confidence that a properly set longer term average limit will provide that the average fourth highest daily maximum value will be at or below 75 ppb. A synopsis of how EPA judges whether such plans "provide for attainment," based on modeling of projected allowable emissions and in light of the NAAQS' form for determining attainment at monitoring sites, follows.

For plans for SO₂ based on 1-hour emission limits, the standard approach is to conduct modeling using fixed emission rates. The maximum emission rate that would be modeled to result in attainment (i.e., in an "average year"¹ shows three, not four days with maximum hourly levels exceeding 75 ppb) is labeled the "critical emission value." The modeling process for identifying

¹ An "average year" is used to mean a year with average air quality. While 40 CFR 50 appendix T provides for averaging three years of 99th percentile daily maximum values (e.g., the fourth highest maximum daily concentration in a year with 365 days with valid data), this discussion and an example below uses a single "average year" in order to simplify the illustration of relevant principles.

this critical emissions value inherently considers the numerous variables that affect ambient concentrations of SO₂, such as meteorological data, background concentrations, and topography. In the standard approach, the state would then provide for attainment by setting a continuously applicable 1-hour emission limit at this critical emission value.

The EPA recognizes that some sources have highly variable emissions, for example due to variations in fuel sulfur content and operating rate, that can make it extremely difficult, even with a well-designed control strategy, to ensure in practice that emissions for any given hour do not exceed the critical emission value. The EPA also acknowledges the concern that longer term emission limits can allow short periods with emissions above the "critical emissions value," which, if coincident with meteorological conditions conducive to high SO₂ concentrations, could in turn create the possibility of a NAAQS exceedance occurring on a day when an exceedance would not have occurred if emissions were continuously controlled at the level corresponding to the critical emission value. However, for several reasons, the EPA believes that the approach recommended in its April 2014 guidance document suitably addresses this concern. First, from a practical perspective, the EPA expects the actual emission profile of a source subject to an appropriately set longer term average limit to be similar to the

emission profile of a source subject to an analogous 1-hour average limit. The EPA expects this similarity because it has recommended that the longer term average limit be set at a level that is comparably stringent to the otherwise applicable 1-hour limit (reflecting a downward adjustment from the critical emissions value) and that takes the source's emissions profile into account. As a result, the EPA expects either form of emission limit to yield comparable air quality.

Second, from a more theoretical perspective, the EPA has compared the likely air quality with a source having maximum allowable emissions under an appropriately set longer term limit, as compared to the likely air quality with the source having maximum allowable emissions under the comparable 1-hour limit. In this comparison, in the 1-hour average limit scenario, the source is presumed at all times to emit at the critical emission level, and in the longer term average limit scenario, the source is presumed occasionally to emit more than the critical emission value but on average, and presumably at most times, to emit well below the critical emission value. In an "average year," compliance with the 1-hour limit is expected to result in three exceedance days (i.e., three days with hourly values above 75 ppb) and a fourth day with a maximum hourly value at 75 ppb. By comparison, with the source complying with a longer term limit, it is possible that additional exceedances

would occur that would not occur in the 1-hour limit scenario (if emissions exceed the critical emission value at times when meteorology is conducive to poor air quality). However, this comparison must also factor in the likelihood that exceedances that would be expected in the 1-hour limit scenario would not occur in the longer term limit scenario. This result arises because the longer term limit requires lower emissions most of the time (because the limit is set well below the critical emission value), so a source complying with an appropriately set longer term limit is likely to have lower emissions at critical times than would be the case if the source were emitting as allowed with a 1-hour limit.

As a hypothetical example to illustrate these points, suppose a source that always emits 1000 pounds of SO₂ per hour, which results in air quality at the level of the NAAQS (i.e., results in a design value of 75 ppb). Suppose further that in an "average year," these emissions cause the 5 highest maximum daily average 1-hour concentrations to be 100 ppb, 90 ppb, 80 ppb, 75 ppb, and 70 ppb. Then suppose that the source becomes subject to a 30-day average emission limit of 700 pounds per hour. It is theoretically possible for a source meeting this limit to have emissions that occasionally exceed 1000 pounds per hour, but with a typical emissions profile emissions would much more commonly be between 600 and 800 pounds per hour. In this

simplified example, assume a zero background concentration, which allows one to assume a linear relationship between emissions and air quality. (A nonzero background concentration would make the mathematics more difficult but would give similar results.) Air quality will depend on what emissions happen on what critical hours, but suppose that emissions at the relevant times on these 5 days are 800 pounds/hour, 1100 pounds per hour, 500 pounds per hour, 900 pounds per hour, and 1200 pounds per hour, respectively. (This is a conservative example because the average of these emissions, 900 pounds per hour, is well over the 30-day average emission limit.) These emissions would result in daily maximum 1-hour concentrations of 80 ppb, 99 ppb, 40 ppb, 67.5 ppb, and 84 ppb. In this example, the fifth day would have an exceedance that would not otherwise have occurred, but the third and fourth days would not have exceedances that otherwise would have occurred. In this example, the fourth highest maximum daily concentration under the 30-day average would be 67.5 ppb.

This simplified example illustrates the findings of a more complicated statistical analysis that EPA conducted using a range of scenarios using actual plant data. As described in appendix B of EPA's April 2014 SO₂ nonattainment planning guidance, the EPA found that the requirement for lower average emissions is highly likely to yield better air quality than is

required with a comparably stringent 1-hour limit. Based on analyses described in appendix B of its April 2014 guidance, the EPA expects that an emission profile with maximum allowable emissions under an appropriately set comparably stringent 30-day average limit is likely to have the net effect of having a lower number of exceedances and better air quality than an emission profile with maximum allowable emissions under a 1-hour emission limit at the critical emission value. This result provides a compelling policy rationale for allowing the use of a longer averaging period, in appropriate circumstances where the facts indicate this result can be expected to occur.

The question then becomes whether this approach—which is likely to produce a lower number of overall exceedances even though it may produce some unexpected exceedances above the critical emission value—meets the requirement in section 110(a)(1) and 172(c)(1) for state implementation plans to “provide for attainment” of the NAAQS. For SO₂, as for other pollutants, it is generally impossible to design a nonattainment plan in the present that will guarantee that attainment will occur in the future. A variety of factors can cause a well-designed attainment plan to fail and unexpectedly not result in attainment, for example if meteorology occurs that is more conducive to poor air quality than was anticipated in the plan. Therefore, in determining whether a plan meets the requirement

to provide for attainment, the EPA's task is commonly to judge not whether the plan provides absolute certainty that attainment will in fact occur, but rather whether the plan provides an adequate level of confidence of prospective NAAQS attainment. From this perspective, in evaluating use of a 30-day average limit, EPA must weigh the likely net effect on air quality. Such an evaluation must consider the risk that occasions with meteorology conducive to high concentrations will have elevated emissions leading to exceedances that would not otherwise have occurred, and must also weigh the likelihood that the requirement for lower emissions on average will result in days not having exceedances that would have been expected with emissions at the critical emissions value. Additional policy considerations, such as in this case the desirability of accommodating real world emissions variability without significant risk of violations, are also appropriate factors for the EPA to weigh in judging whether a plan provides a reasonable degree of confidence that the plan will lead to attainment. Based on these considerations, especially given the high likelihood that a continuously enforceable limit averaged over as long as 30 days, determined in accordance with the EPA's April 2014 guidance, will result in attainment, the EPA believes

as a general matter that such limits, if appropriately determined, can reasonably be considered to provide for attainment of the 2010 SO₂ NAAQS.

The April 2014 guidance offers specific recommendations for determining an appropriate longer term average limit. The recommended method starts with determination of the 1-hour emission limit that would provide for attainment (i.e., the critical emission value), and applies an adjustment factor to determine the (lower) level of the longer term average emission limit that would be estimated to have a stringency comparable to the otherwise necessary 1-hour emission limit. This method uses a database of continuous emission data reflecting the type of control that the source will be using to comply with the SIP emission limits, which (if compliance requires new controls) may require use of an emission database from another source. The recommended method involves using these data to compute a complete set of emission averages, computed according to the averaging time and averaging procedures of the prospective emission limitation. In this recommended method, the ratio of the 99th percentile among these long term averages to the 99th percentile of the 1-hour values represents an adjustment factor that may be multiplied by the candidate 1-hour emission limit to determine a longer term average emission limit that may be

considered comparably stringent.² The April 2014 guidance also addresses a variety of related topics, such as the potential utility of setting supplemental emission limits, such as mass-based limits, to reduce the likelihood and/or magnitude of elevated emission levels that might occur under the longer term emission rate limit.

Preferred air quality models for use in regulatory applications are described in appendix A of the EPA's *Guideline on Air Quality Models* (40 CFR part 51, appendix W (appendix W)). In 2005, the EPA promulgated the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) as the Agency's preferred near-field dispersion modeling for a wide range of regulatory applications addressing stationary sources (for example in estimating SO₂ concentrations) in all types of terrain based on extensive developmental and performance evaluation. Supplemental guidance on modeling for purposes of demonstrating attainment of the SO₂ standard is provided in appendix A to the April 2014 guidance. Appendix A provides extensive guidance on the modeling domain, the source inputs, assorted types of meteorological data, and background concentrations. Consistency with the recommendations in this

² For example, if the critical emission value is 1000 pounds of SO₂ per hour, and a suitable adjustment factor is determined to be 70 percent, the recommended longer term average limit would be 700 pounds per hour.

guidance is generally necessary for the attainment demonstration to offer adequately reliable assurance that the plan provides for attainment.

As stated previously, attainment demonstrations for the 2010 1-hour primary SO₂ NAAQS must demonstrate future attainment and maintenance of the NAAQS in the entire area designated as nonattainment (*i.e.*, not just at the violating monitor) by using air quality dispersion modeling (see appendix W to 40 CFR part 51) to show that the mix of sources and enforceable control measures and emission rates in an identified area will not lead to a violation of the SO₂ NAAQS. For a short-term (*i.e.*, 1-hour) standard, the EPA believes that dispersion modeling, using allowable emissions and addressing stationary sources in the affected area (and in some cases those sources located outside the nonattainment area which may affect attainment in the area) is technically appropriate, efficient and effective in demonstrating attainment in nonattainment areas because it takes into consideration combinations of meteorological and emission source operating conditions that may contribute to peak ground-level concentrations of SO₂.

The meteorological data used in the analysis should generally be processed with the most recent version of AERMET. Estimated concentrations should include ambient background concentrations, should follow the form of the standard, and

should be calculated as described in section 2.6.1.2 of the August 23, 2010 clarification memo "Applicability of Appendix W Modeling Guidance for the 1-hr SO₂ National Ambient Air Quality Standard" (U. S. EPA, 2010a) (August 2010 1-hour SO₂ clarification memo).

IV. Review of Modeled Attainment Plan

The following discussion evaluates various features of the modeling that Iowa used in its attainment demonstration.

A. Model Selection

Iowa's attainment demonstration used the most current version of AERMOD available during each phase of its analysis (i.e., the determining sources culpable to nonattainment phase and the control strategy phase). As previously stated, AERMOD is the preferred model for this application. The final control strategy modeling analysis utilized version 15181. The state asserts that all analyses were conducted with EPA's regulatory default options and considering EPA's guidance documents including the August 2010 1-hour SO₂ clarification memo; the "Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO₂ National Ambient Air Quality Standard" memo (March 2011 1-hour NO₂ clarification memo); and

the December 2013 SO₂ Modeling Technical Assistance Document (TAD).³ The receptor grid was centered on the Musser Park monitor, and extended out to the edges of the nonattainment area.⁴ Those portions of the fence lines of the facilities being evaluated that fell outside of the nonattainment area were omitted from the analysis. Finer grid spacing of 50 meters was used to resolve modeled impacts around other nearby individual facilities included in the analyses, but finer grid spacing was applied only around sources within the confines of the nonattainment area. Receptors were excluded from areas within the property boundaries of each facility in the analysis. The most recent version of AERMAP (11103) was used to import terrain and source elevations from the National Elevation Dataset (NED). All building downwash analyses were conducted using the most recent version (04274) of EPA's Building Profile Input Program with Plume Rise Enhancements (BPIP-Prime). EPA finds the selection and use of these inputs to AERMOD, AERMAP and BPIP-Prime to be appropriate and in accordance with appendix W and applicable EPA guidance, such as the TAD.⁵

³ SO₂ NAAQS Designations Modeling Technical Assistance Document, December 2013.

⁴ The Musser Park monitor was the violating monitor utilized during the designations process.

⁵ The state utilized the December 2013 version of the modeling TAD when completing its technical analysis. The modeling TAD has been revised since then; the TAD was revised in February 2016 and then again in August 2016.

B. Meteorological Data

Modeling for the Muscatine 1-hr SO₂ nonattainment SIP was conducted using the surface station and upper air data from the Davenport airport, and used consecutive years from 2008–2012.⁶ This represents the most recent, readily available 5-year period at the time of the initial analysis per section 8.3.1.2 of 40 CFR part 51 appendix W. The most current version of AERMET available during each phase of the analysis was used. The final control strategy analysis utilized data processed with AERMET version 14134. The state utilized AERMINUTE to process 1-minute ASOS wind data to generate hourly average winds for input to AERMET. EPA finds the selection and use of these inputs to AERMET to be appropriate and in accordance with appendix W and applicable EPA guidance, such as the TAD.

C. Emissions Data

The state utilized information from the technical support document (TSD) it submitted to EPA during the nonattainment boundary recommendations to inform which sources needed to be included in its nonattainment SIP modeling.⁷ The nonattainment boundary analysis demonstrated that industrial sources along the Mississippi River have a role in causing or contributing to

⁶ A detailed analysis to support the use of the Davenport meteorological data from the Davenport airport was previously approved by EPA for use in the PM_{2.5} Muscatine SIP analysis. *See* 79 FR 46742. EPA finds use of the Davenport airport site meteorological data to be appropriate for the 2010 1-hr SO₂ Muscatine SIP.

⁷<https://www.epa.gov/sulfur-dioxide-designations/so2-designations-round-1-iowa-state-recommendation-and-epa-response> and provided in the docket of this rulemaking.

monitored exceedances at the Musser Park monitor. Based on this analysis, all major sources of SO₂ emissions within the nonattainment area- Grain Processing Corporation (GPC), Muscatine Power and Water (MPW), and Monsanto- were included in the nonattainment SIP control strategy analysis.

As described in the state's nonattainment SIP, GPC is the largest source of SO₂ within the nonattainment area. GPC is a corn wet milling facility that processes grain into industrial, beverage, and fuel-grade ethanol, as well as a variety of grain based food products, industrial products, and animal feeds. Early in the corn wet milling process the grain is soaked (steeped) in large tanks where sulfur containing compounds are added to the steep water to reduce bacterial growth and help break down the kernels. The sulfur content in the steep water is generally low but does lead to SO₂ emissions from a variety of downstream processes. The state asserts that 96 percent of the SO₂ emissions at GPC is generated by six coal-fired boilers.

MPW is a municipal electric generating station. MPW produces steam through the combustion of fossil fuels, generally coal, and uses the steam to produce electricity. The largest sources of SO₂ operated at MPW are three coal-fired boilers, Units 7, 8, and 9, serving generators with nameplate capacities of 25, 937, and 175.5 megawatts (MW), respectively. An auxiliary

boiler operated at MPW is not capable of burning coal but has the potential to emit SO₂ when firing on distillate fuel oil.

Monsanto is a manufacturer and formulator of herbicides for agricultural use and also produces intermediates for herbicide manufacturing and formulation. A coal-fired boiler (Boiler #8) used for the production of on-site heat and power is the largest SO₂ source at Monsanto.

The state excluded four facilities located within the nonattainment area from the its nonattainment SIP modeling analysis: HNI Corporation - North Campus (HNI North); H.J. Heinz, L.P. (H.J. Heinz); Union Tank Car Co. (Union Tank); and HNI Corporation - Central Campus (HNI Central). As shown in the state's nonattainment SIP, the cumulative actual emissions from these sources is relatively low; the sources emitted a combined 0.14 tons of SO₂ per year (tpy) in 2011. See section V.A. Emissions Inventory in this preamble for the 2011 emissions data from these sources. Additionally, if the state were to consider the maximum fuel capacity of a source like Heinz that has two boilers that burn natural gas, it is unlikely that the SO₂ emissions would be sufficient enough to cause a significant concentration gradient. The TAD indicates that "other" sources in the area not causing significant concentration gradients in the vicinity of the source(s) of interest, should be included in the modeling via monitored background concentrations. The EPA

agrees with the state's recommendation that these facilities do not need to be explicitly modeled and that they are adequately characterized in the background SO₂ concentrations. See section IV.E. Background Concentrations in this preamble for more detailed information regarding the determination of the background concentration.

The state also evaluated several major sources of SO₂ emissions located outside of the nonattainment area boundary—MidAmerican Energy Louisa Generating Station (LGS), Gerdau Ameristeel (Gerdau), SSAB and Linwood and Lafarge. Linwood and Lafarge, located in Scott County, are approximately 20 km away from the nonattainment area. The selection of the Davenport monitor to represent background likely accounts for the emissions from Linwood and Lafarge.⁸ As such, Linwood and Lafarge were excluded from further consideration. See section IV.E. Background Concentrations in this preamble for additional information.

All included emission units were modeled using their actual stack parameters and site layout. There were no stacks above formula GEP (good engineering practice) height. There were stacks greater than 65 meters at GPC, MPW, and LGS and each of those stacks were adjacent to tall buildings making the formula

⁸ According to information provided by the state in its nonattainment SIP, the Davenport monitor is located in Scott County, approximately 11 km from Linwood and Lafarge, and likely accounts for the emissions from Lafarge and Linwood.

height taller than the actual stack height. Therefore, each of those stacks were modeled at their actual stack heights.

Per EPA's April 2014 guidance, the use of allowable emissions and the modeling of intermittent emissions (for sources such as emergency generators and startup/shutdown emissions), for the purpose of modeling for SO₂ attainment demonstrations, should follow the recommendations in EPA's March 2011 1-hour NO₂ clarification memo (even though it was specific to NO₂). The state's nonattainment SIP indicates that it addressed modeling intermittent sources in according with EPA's March 2011 1-hour NO₂ clarification memo, and as such all emission units that operate intermittently (e.g., emergency engines and fire pumps) were excluded from the analysis. Additionally, emission units that were limited to burning a specific fuel occasionally were modeled at emission rates that represent the fuel that is burned during normal operations. For example, the two auxiliary boilers (EP2 and EP3) operated by LGS are limited to burning fuel oil for no more than 48 hours per year. EP2 and EP3 burn natural gas during normal operations therefore, EP2 and EP3 were modeled at emission rates associated with burning natural gas. EPA agrees with the state that it is appropriate to exclude these intermittent emissions (e.g., emergency engines and fire pumps) in the analysis and modeling

the fuel burned during normal operations, as it is consistent with appendix W and the TAD.

The state's nonattainment SIP acknowledges that, although SO₂ emissions in and near the nonattainment area are principally attributable to point sources, a comprehensive emissions inventory should include an assessment of the other source sectors. The state asserted that it accomplished this by using estimates of air emissions for the onroad, nonroad, and nonpoint (area) sources from EPA's 2011 National Emissions Inventory (NEI) datasets. According to the state's sector summary analyses using EPA's SCC (source classification code) full detail data files from the 2011 NEI (version 2, dated March 4, 2015), approximately 2.64 tons of SO₂ were emitted by onroad mobile sources in all of Muscatine County (this includes areas within and outside of the nonattainment area). Nonroad mobile sources (which include non-road equipment, locomotives, commercial marine vessels, and aircraft) contributed approximately 1.99 tpy of SO₂. Again, that estimate includes nonroad mobile sources across all of Muscatine County.

The state asserts that nonpoint (area) SO₂ emissions were also relatively low, at approximately 18.73 tpy. Of that total, roughly half (8.92 tons) was associated with emissions mostly from prescribed fires. As with the mobile sectors, the nonpoint totals also represent sums across all of Muscatine County. The

EPA agrees with the state's proposal that onroad, nonroad, and nonpoint sources in and near the Muscatine nonattainment area are adequately represented by background concentrations included in modeling analysis and that further consideration of these sectors is unnecessary. See section IV.E. Background Concentrations and section V. A. Emissions Inventory in this preamble for more detailed information.

D. Emission Limits

Section 172(c)(6) of the CAA requires that the state's nonattainment plan include enforceable emission limitations, and such other control measures, means or techniques (including economic incentives such as fees, marketable permits, and auctions of emission rights), as well as schedules and timetables for compliance, as may be necessary or appropriate to provide for attainment of such standard in such area by the applicable attainment date. See General Preamble at 13567-68.

Part of the review of state's attainment plan must address the use of these limits, both with respect to the general suitability of using such limits for the purpose of meeting the requirements of CAA § 172(c)(6) with respect to whether the particular limits included in the plan have been suitably demonstrated to provide for attainment. The first subsection that follows addresses the enforceability of the limits in the

plan, and the second subsection that follows addresses in the limits in particular the longer term average limits (i.e., the 21-day average limit for MPW).

1. Enforceability

As specified in section 172(c)(6) and section 110(a)(2)(A) of the CAA and 75 FR 35520, emission limitations, control measures and other elements in the SIP must be enforceable by the state and EPA. Working with GPC, MPW, and Monsanto the state developed an implementable control strategy designed to ensure expeditious attainment of the 1-hr SO₂ NAAQS. The control strategy establishes source-specific control measures that include more stringent SO₂ emissions limits, new control devices, and process changes. The state's nonattainment SIP includes these control measures with specific timetables for implementation, establishes minimum performance criteria, and provides schedules for completing verification processes. See section V. B. RACM/RACT in this preamble for additional information. New air construction permits issued to GPC, MPW, and Monsanto include emissions limits, timetables for compliance, and enforcement criteria and are the enforceable documents included in the state's nonattainment SIP that EPA is proposing to approve. As noted in the nonattainment SIP, the state has the authority to implement each of the permits. Each permit includes notification, reporting, and recordkeeping

requirements. The facilities must, for example, notify the state when they initiate and when they complete construction. Each permit also contains performance testing (emissions testing) obligations with specific schedules, methods, and frequencies for compliance. Each performance test must be approved by the state and a testing protocol must be submitted to the state in advance of the compliance demonstration. Results of the tests must be submitted in writing to the state in the form of a comprehensive report within six weeks of the completion of any testing. Additionally, GPC, MPW, and Monsanto are major sources under the Title V operating permit program and must submit semi-annual monitoring reports by September 30 and March 31, and an annual compliance certification by March 31, of each year. The state also inspects Title V sources at a minimum of every two years. In summary, the state has a comprehensive program to identify sources of violations and to undertake follow-up for compliance and enforcement.

As noted in the state's May, 26, 2016, submittal letter, Iowa was included in the agency's *Response to Petition for Rulemaking; Restatement and Update of EPA's SSM Policy Applicable to SIPs; Findings of Substantial Inadequacy; and SIP Calls To Amend Provisions Applying to Excess Emissions During Periods of Startup, Shutdown and Malfunction* (SSM SIP call) published June 12, 2015, (80 FR 33839). In the SSM SIP call,

subrule 567 - Iowa Administrative Code (IAC) 24.1(1) was found to be "substantially inadequate" because it provides that excess emissions during periods of startup and shutdown are not a violation of an emission standard if good practices for minimizing emissions are followed. Each construction permit the state requested be included in the SIP apart if its control strategy contains SSM language from the subrule that is subject to the SIP call (Condition 6 of each permit). As such the state is requested that EPA not act on permit Condition 6 of the included permits. EPA agrees that it would not be appropriate to approve Condition 6 of each permit into the SIP and propose the condition's exclusion.

EPA is proposing to determine that these control measures, and the permits that contain them, satisfy CAA § 110(a)(2)(A) and 172(c)(6) requirements and 75 FR 35520. It should be noted that the emission limit established for MPW in the control strategy of the state's nonattainment plan relies on a pound/hour (lb/hr) limit expressed an averaging time (e.g. as 21-day average) across multiple units.⁹ In accordance with EPA policy, the 21-day average limit is set at a lower level than the emission rate used in the attainment demonstration; the

⁹ The MPW permit included as appendix C to the nonattainment SIP specifies that compliance with the emission standard of 1153 lb/hr of SO₂ shall be demonstrated through the use a Continuous Emissions Monitoring System (CEMS) and shall be determined on a 21-day rolling average bases. The limit includes startup, shutdown and malfunction emissions. Compliance with the emission limit shall be demonstrated using the formula found in Permit Condition 15.8. The emission limit became effective January 1, 2017.

relationship between these two values is discussed in more detail in the following section.

2. Longer Term Averaging

As discussed in the April 2014 guidance, and in section III. Attainment Demonstration and Longer Term Averaging in this preamble, EPA has recommended that averaging times in SIP emission limits should not exceed the applicable NAAQS averaging time, in this case 1-hour, however, EPA has acknowledged that a 1-hr emission rate limit may be difficult to achieve at some facilities. As such EPA provided guidance for establishing longer term averaging limits based on a supportable downward adjustment of the critical emissions value. The critical emissions value is the 1-hr averaged emission rate that dispersion modeling predicts would attain the NAAQS.

The control strategy included in the state's nonattainment SIP allows MPW to meet a compliance formula based on a 21-day averaging period across multiple units running alone or in combination. The formula incorporates a weighting function derived from the modeling results of the individual units (Units 7, 8 and 9), and downward adjustments of the critical emissions values. A separate downward adjustment was calculated for each unit using five years of unit-specific CEMS data, 2010-2014; the state considered this data to be representative of the boilers' operations into the future, and reflect the fact that each unit

is emitting from a separate stack. The 1-hour emissions value of 1,153 lbs/hr used in the formula incorporates the adjustment to a longer term limit according to the ratio of the 99th percentile 21-day average emission rate to the 99th percentile 1-hr emission rates from the CEMS data. Because the 1,153 lbs/hr value was derived from all 3 units operating together additional model runs were needed to ensure the formula was protective under other operating scenarios, with combinations of one or two units operating. The formula provides flexibility for MPW to run their three coal units alone or in combination in such a way that the NAAQS will be protected at all times. Because the units have different dispersion characteristics, the formula weighs each unit's individual emissions such that the critical modeled value in the formula is always protected.

To determine the longer term average limit, the state determined the individual variability of each unit from the 2010-2014 CEMS data as described above. The variability value ratios of the 99th percentile 21-day average and 99th percentile hourly values were 0.71, 0.90, 0.63 for the three units respectively. The state determined a critical value for each of these units individually using their respective variability and stack characteristics. In the first modeling scenario (the "All" run) the state determined the hourly critical values for Units 7,8,9 as 250 lbs/hr, 1000 lbs/hr, and 120 lbs/hr respectively,

so 1,370 lbs/hr total from the 3 units. Applying the individual unit variability, the equivalent 21 day limits would be 177.5 lbs/hr, 900.0 lbs/hr, and 75.6 lbs/hr respectively which when added together is 1,153 lbs/hr, the value that becomes the basis of the compliance formula. The state then modeled 7 combinations of emissions scenarios using the individual unit stack characteristics that all demonstrated compliance with the NAAQS and accounted for individual variability of each unit. These scenarios consisted of 3 model runs where the individual units were operating alone and 4 model runs with various combinations of units operating. Each run had its own hourly critical modeled value demonstrating compliance and these 7 runs formed the basis for the weights in the formula to ensure 1,153 lbs/hr was always protective of all the individual critical values modeled. This provided modeled emission rates such that a weighted formula could be derived such that any combination of emissions from the three individual units would always be at or below the value of 1,153 lbs/hr as expressed in the formula. Because the stacks have different dispersion characteristics and the modeled scenarios have different critical emission values, the formula derived contains different weights or multipliers for each unit's actual hourly emissions, but the weights are such that no individual unit operating alone or a combination of units will cause a NAAQS violation as long as the formula criteria as

expressed in the permit are met.¹⁰ Table 1 shows that during each operational scenario at MPW, combined with the control strategies for GPC and Monsanto, the current maximum allowable permitted emission rates from LGS, and background concentrations, will result in attainment of the 1-hour SO₂ NAAQS.

Table 1. Cumulative Modeling Results with each MPW Operating Scenario

| MPW Operating Scenario | Cumulative Model Result (µg/m ³) | 1-hour SO ₂ NAAQS (µg/m ³) |
|------------------------|--|---|
| All | 182.76 | 196 |
| U9 Off | 182.71 | |
| U8 Off | 183.66 | |
| U7 Off | 182.88 | |
| U7 Only | 183.96 | |
| U8 Only | 181.86 | |
| U9 Only | 187.78 | |

Based on a review of the state's submittal, the EPA believes that the 21-day average limit for MPW provides a suitable alternative to establishing a 1-hour average emission limit for this source. The state has used a suitable data base

¹⁰ The formula for MPW, as specified in their permit is as follows:

"The owner or operator shall maintain a file of computations to show the total hourly emission level for SO₂. The owner or operator shall use the total hourly SO₂ emission rates to calculate and record the average SO₂ emission rate for each calendar day. Effective January 1, 2017, the owner or operator shall use the daily average SO₂ emission rates to demonstrate compliance with the 21-day rolling average as calculated below: $SO_2 = 2.03 * (\text{Unit 7}) + 0.84 * (\text{Unit 8}) + 1.22 * (\text{Unit 9})$ Where, SO₂ = total emissions, in pounds per hour, of sulfur dioxide from Unit 7, Unit 8 and Unit 9

Unit 7 = 24-hour average sulfur dioxide emission rate, lb/hr, for Unit 7

Unit 8 = 24-hour average sulfur dioxide emission rate, lb/hr, for Unit 8

Unit 9 = 24-hour average sulfur dioxide emission rate, lb/hr, for Unit 9

in an appropriate manner and has thereby applied an appropriate adjustment, yielding an emission limit formula that has comparable stringency to the 1-hour average limit that the state determined would otherwise have been necessary to provide for attainment. While the 21-day average limit allows occasions in which emissions may be higher than the level that would be allowed with the 1-hour limit, the state's limit compensates by requiring average emissions to be lower than the level that would otherwise have been required by a 1-hour average limit. For reasons described above and explained in more detail in EPA's April 2014 guidance, EPA finds that appropriately set longer term average limits provide a reasonable basis by which nonattainment plans may provide for attainment. Based on its review of this general information as well as the particular information in state's plan, the EPA finds that the 21-day average limit formula for MPW in combination with other limitations in the state's plan, will provide for attainment of the NAAQS.

E. Background Concentrations

The state reviewed its statewide SO₂ monitoring network to determine an appropriate background monitoring location- the Davenport SO₂ monitoring site. As noted by the state, the ideal background location chosen represents the contributions from all sources not explicitly modeled. Because the monitoring locations

in Muscatine, IA are impacted significantly by sources that were included in the modeling analysis, those monitors were eliminated as an option to represent the background concentrations in the area. Of the remaining monitor locations, two are situated adjacent to industrialized areas (Cedar Rapids and Clinton), and, as such, would likely be an overestimate of the concentrations caused by background sources. The state determined that the Des Moines and Lake Sugema monitors were impacted by less SO₂ emissions than what would be represented by the background for the Muscatine nonattainment area - and, as such, would likely be an underestimation of the concentrations of SO₂ caused by background sources.¹¹

The state determined that the Davenport SO₂ monitoring location was appropriate for estimating background concentrations for the following reasons: 1) the Davenport monitor is the nearest location to the nonattainment area (other than those monitors located in Muscatine already excluded); 2) the Davenport monitor is near a moderately industrialized area, but is not situated adjacent to those sources of emissions; 3) the Davenport monitor is in a county with a moderate amount of SO₂ emissions; and 4) using the Davenport monitor is consistent with the meteorological data used for the analysis. For these

¹¹ The Des Moines monitor is approximately 5 km from the nearest SO₂ source. The county emissions are approximately 163 tpy. The Lake Sugema monitor is more than 10 km away from the nearest SO₂ source. The state's nonattainment SIP indicates that there are no reported major or minor sources of SO₂ emissions in the county.

reasons the state believed that the Davenport monitoring location could account for the sources screened out of the control strategy such as emissions from natural sources, major and minor point sources not included in the analysis, mobile (onroad and nonroad) sources, and nonpoint sources.

The state utilized temporally varying background concentrations by hour and season from the Davenport SO₂ monitoring location to account for contributions to the predicted impacts from background SO₂ sources. To account for seasonal and diurnal variations in the background levels, the state based the background concentration on the average diurnal and seasonal concentration pattern observed at the Davenport monitor during the years 2011-2013. For the years 2011-2013, the 99th percentile monitor concentration was calculated for each hour of the day by season and then averaged across the three years.¹²

The state also averaged the 2011-2013 design values for Cedar Rapids, Davenport, Des Moines, and Lake Sugema to determine if that number, 10.5 ppb, would be appropriate as background. The state called this the Tier 1 value. The Tier 1

¹² The EPA's SO₂ National Ambient Air Quality Standards Designations Modeling TAD describes an appropriate methodology of calculating temporally varying background monitored concentrations by hour of day and season (excluding periods when the source in question is expected to impact the monitored concentration). The methodology is to use the 99th percentile concentration for each hour of the day by season and average across 3 years, excluding periods when the dominant source(s) are influencing the monitored concentration (i.e., 99th percentile, or 4th highest, concentrations for hour 1 for January or winter, 99th percentile concentrations for hour 2 for January or winter, etc.).

value of 10.5 ppb is higher than all but one of the seasonal/diurnal concentrations. This shows that the use of the Tier 1 value for all hours and seasons would have been too high to represent the variable background concentrations. The EPA agrees with the state's proposal that the method of using temporally varying background monitor concentrations by hour and season from the Davenport monitoring location, as it is calculated from the 99th percentile, is appropriate.

F. Summary of Results

The modeling analysis was conducted in two phases. The first phase (Phase 1) of the analysis was a screening analysis to determine the sources that needed to be included in the control strategy analysis. The second phase (Phase 2) of the analysis was used to develop the control strategy and included all significant sources identified in Phase 1.

1. Phase 1 - Preliminary Analysis

This phase was accomplished by modeling actual emissions from GPC, MPW, Monsanto, and LGS and allowable emissions from SSAB and Gerdau and then determining the percentage of predicted NAAQS exceedances within the nonattainment area to which each facility significantly contributed. In this way, the state determined that GPC contributed to 100 percent of the NAAQS exceedances, MPW contributed to approximately 25 percent of the

NAAQS exceedances, Monsanto contributed to approximately 1 percent of the NAAQS exceedances, and LGS contributed to approximately 5 percent of the NAAQS exceedances. Both SSAB and Gerdau each modeled less than a 1 percent contribution to the NAAQS exceedance days within the nonattainment area. Therefore, only GPC, MPW, Monsanto and LGS were determined to have enough potential contribution to NAAQS exceedances to be evaluated further.¹³

The state then further subdivided the sources by classifying the significant contributors as either a primary or a secondary contributor. If the facility's significant contribution to the predicted NAAQS exceedance was greater than or equal to half of the total concentration (minus background) it was considered a primary contributor. If the facility's contribution was less than half of the total concentration, but still more than the Significant Impact Level (SIL) it was considered a secondary contributor.¹⁴

¹³ The LGS facility is located immediately south of the nonattainment area. During the designations process, this source was shown to be insignificant during predicted exceedances at the Musser Park monitor, but as it was possible that the source could cause a concentration gradient in the vicinity of the southern portion of the nonattainment area, it was included in the analysis.

¹⁴ Per EPA's August 23, 2010, "*Guidance Concerning the Implementation of the 1-hour SO₂ NAAQS for the Prevention of Significant Deterioration Program*", the SIL is 3 ppb. The EPA plans "to undertake rulemaking to adopt a 1-hour SO₂ SIL value. However, until such time as a 1-hour SO₂ SIL is defined in the PSD regulations, we are providing an interim SIL of 3 ppb, which we intend to use as a screening tool for completing the required air quality analyses for the new 1-hour SO₂ SIL NAAQS under the federal PSD program at 40 CFR 52.21. We are also making the interim SIL available to States with EPA-approved implementation plans containing a PSD program to use at their discretion." The SIL remains an interim SIL until rulemaking is complete.

GPC was identified as a primary contributor to all predicted NAAQS exceedances within the nonattainment area. GPC's max potential contribution was estimated as 3,180 $\mu\text{g}/\text{m}^3$ (or approximately 1,223 ppb).¹⁵ GPC's contribution to the predicted NAAQS exceedance was greater than or equal to half of the total concentration (minus background) 100 percent of the time.

MPW, Monsanto and LGS were identified as secondary contributors. MPW's max potential contribution was estimated as 107 $\mu\text{g}/\text{m}^3$ (or approximately 41 ppb). MPW's contribution to the predicted NAAQS exceedance was less than half of the total concentration, but still more than SIL (minus background) 26 percent of the time. Monsanto's max potential contribution was estimated as 28 $\mu\text{g}/\text{m}^3$ (or approximately 11 ppb). Monsanto's contribution to the predicted NAAQS exceedance was less than half of the total concentration, but still more than SIL (minus background) less than 1 percent of the time. LGS's maximum potential contribution was estimated as 59 $\mu\text{g}/\text{m}^3$ (or approximately 22.7 ppb). LGS's contribution to the predicted NAAQS exceedance was less than half of the total concentration, but still more than SIL (minus background) 2 percent of the time. As such, only GPC, MPW, Monsanto and LGS were included in the second phase of the analysis.

¹⁵ To convert from $\mu\text{g}/\text{m}^3$ to ppb, the $\mu\text{g}/\text{m}^3$ value was divided by 2.6.

2. Phase 2 - Control Strategy Development

Sources identified in Phase 1 (GPC, MPW, Monsanto, and LGS) as being significant contributors were modeled at their maximum permitted allowable emission rates. Using the process summarized below, more restrictive maximum permitted emission rates were developed where necessary to ensure modeled attainment.

To start its Phase 2 analysis, the state provided GPC with a model input file that included its emission units as well as the exceedance receptors to which it contributed. The state's nonattainment SIP submittal indicates that GPC reviewed the input data for accuracy and then mitigated all modeled exceedances caused by the GPC facility alone.

The remaining facilities (MPW, Monsanto, and LGS) were then added to the analysis with their maximum permitted allowable emission rates and the cumulative impacts were determined across the entire nonattainment area. According to the state's nonattainment SIP submittal, the remaining predicted exceedances were then discussed with Monsanto and MPW. As a result of those discussions, additional control measures were developed for those facilities and are incorporated in construction permits submitted as part of the SIP revision. See section V.B. in this preamble for more information regarding the control measures.

Monsanto proposed to decrease the emission rate for Boiler 8 at its facility to mitigate exceedances just north of its property. MPW proposed multiple model scenarios with combined operation of Units 7, 8, and 9. Regardless of the operational scenario, the unit/units were modeled at an equation cap of 1,153 lb/hr SO₂. The model results varied depending on which combination of boilers was running. Each of the modeling scenarios (with background included) resulted in concentrations below the 1-hour SO₂ NAAQS. The highest modeled SO₂ concentration was 187.87 ug/m³ which included the operation of just Unit 9 at MPW. See section IV.D.2. Longer Term Averaging limits, in this preamble, for more discussion of the equation used to determine compliance with the NAAQS for each MPW modeling scenario.

These results indicate that the controls established in the construction permits for MPW, GPC and Monsanto result in attainment of the NAAQS, and as such, additional controls were not necessary for LGS in order for the area to attain. EPA agrees with the state's determination that its control strategy analysis results in modeled concentrations throughout the nonattainment area that are at or below 75 ppb/196.4 ug/m³. Based upon monitoring data discussed in section V.B. RACM/RACT in this preamble, EPA expects that the Muscatine area will attain by the attainment date, August 5, 2018.

V. Review of Other Plan Requirements

A. Emissions Inventory and the Quantification of Emissions

Section 172(c)(3) of the CAA requires that the state's nonattainment plan include a comprehensive, accurate, current inventory of actual emissions from all sources of the relevant pollutant or pollutants in such area, including such periodic revisions as the Administrator may determine necessary to assure that the requirements of this part are met. Section 172(c)(4) of the CAA requires that the state's nonattainment plan expressly identify and quantify the emissions, if any, of any such pollutant or pollutants which will be allowed, in accordance with section 703(a)(1)(B) of the CAA, from the construction and operation of major new or modified stationary sources in each such area. The plan shall demonstrate to the satisfaction of the Administrator that the emissions quantified for this purpose will be consistent with the achievement of reasonable further progress and will not interfere with attainment of the applicable National Ambient Air Quality Standard by the applicable attainment date.

The emissions inventory and source emission rate data for an area serve as the foundation for air quality modeling and other analyses that enable states to: 1) estimate the degree to which different sources within a nonattainment area contribute to violations within the affected area; and 2) assess the

expected improvement in air quality within the nonattainment area due to the adoption and implementation of control measures. As noted above, the state must develop and submit to EPA a comprehensive, accurate and current inventory of actual emissions from all sources of SO₂ emissions in each nonattainment area, as well as any sources located outside the nonattainment area which may affect attainment in the area. See the April 2014 guidance. Additional emission inventory information was discussed in section IV.C Emissions Data in this preamble. A brief summary is provided later in this action.

The base year inventory establishes a baseline that is used to evaluate emissions reductions achieved by the control strategy and to assess reasonable further progress requirements. The state's nonattainment SIP noted that, at the time, the most recent and available triennial inventory year was 2011 and the stated found that it served as a suitable base year. Table 2 provides the 2011 SO₂ emissions inventory data for sources within and outside of the nonattainment the area (data have been rounded to the nearest whole number).

Table 2. Base Line Emission Inventory for the
Muscatine, IA Nonattainment Area

| Base Line Emissions Inventory for the Muscatine NAA | | |
|---|------------------------------|---|
| | Facility | 2011 SO ₂ Emissions (tpy) |
| Inside of the NAA | Grain Processing Corporation | 10,810 |

| | | |
|-------------------------|---------------------------|--------|
| | Muscatine Power and Water | 2,374 |
| | Monsanto | 537 |
| | HNI Corp.-North Campus | <1 |
| | HNI Corp.-Central Campus | <1 |
| | H.J. Heinz L.P. | <1 |
| | Union Tank Car Co. | <1 |
| Outside of the NAA | Louisa Generating Station | 7,304 |
| All of Muscatine County | Onroad Mobile | 3 |
| | Nonroad Mobile | 2 |
| | Area Sources | 10 |
| | Fires | 9 |
| Total | | 21,049 |

Although not part of the state's discussion of its 2011 baseline emissions inventory, the state's nonattainment SIP also provides 2013 SO₂ data for Gerdau and SSAB in Muscatine County and Linwood and Lafarge in Scott County. However, the state provided this as a sum for the sources by county (e.g., the sum of Gerdau and SSAB was 254 tpy and the sum of Linwood and Lafarge was 1,539 tpy). Gerdau and SSAB are approximately 8-9 km away from the nonattainment boundary and Linwood and Lafarge are approximately 20 km away from the nonattainment area boundary.

As already noted, the state's nonattainment SIP must identify and quantify the emissions which will be allowed from the construction and operation of major new or modified stationary sources in the area (see CAA § 172(c)(4)). The state must demonstrate that such emissions will be consistent with RFP requirements and will not interfere with attainment of the 1-hr

SO₂ NAAQS. These requirements are met by the states preconstruction permitting program and implementation of the Nonattainment New Source Review Rules (NNSR). See section C. Nonattainment New Source Review in this preamble for more information.

According to EPA's April 2014 SO₂ guidance, the SIP should also include a projected attainment year inventory that includes estimated emissions for all emission sources of SO₂ that were determined to have an impact on the affected nonattainment area for the year in which the area is expected to attain the standard, consistent with the attainment demonstration. The inventory should reflect projected emissions for the attainment year for all SO₂ sources in the nonattainment area. The state's nonattainment SIP provided a projected inventory only for the controlled sources, as provided in table 3. The inventory was developed assuming each SO₂ source operates 8,760 hours per year at its permitted maximum allowable emission rate.¹⁶

¹⁶ The projections don't consider operational, physical, supply/demand, or other factors that typically curb actual emissions to values below the maximum permitted allowable rate. There is potential for the actual attainment-year emissions to be lower than those in Table 2.

Table 3. Projected Allowable Annual SO₂ Emissions
from Control Strategy Sources

| Projected 2018 Emissions for the Controlled Sources | |
|---|--------------------------------------|
| Facility | 2018 SO ₂ Emissions (tpy) |
| Grain Processing Corporation | 167 |
| Muscatine Power and Water | 5,051 |
| Monsanto | 1,196 |

The EPA is proposing to determine that the state has meet the requirements of CAA §172(c)(3) and 172(c)(4).

B. RACM/RACT

CAA § 172(c)(1) requires that the state's nonattainment plan provide for the implementation of all RACM as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of RACT) and shall provide for attainment of the NAAQS. The state's plan for attaining the 1-hour SO₂ NAAQS in the Muscatine nonattainment area is based on a variety of control measures at GPC, MPW and Monsanto. Those measures were included in the state's nonattainment SIP as construction permits.¹⁷

To ensure the SO₂ NAAQS is attained, GPC must install additional scrubbers, comply with new and more stringent SO₂ emission limits, and implement process modifications designed to

¹⁷ Appendix B, C and D of the state's nonattainment SIP contain the Federally enforceable air construction permits that define RACM/RACT requirements. The RACM/RACT limits taken to comply with the NAAQS are specifically noted in each permit via footnotes in the permits.

reduce SO₂ emissions across numerous downstream sources. Table 4-1 of the state's nonattainment SIP lists all the sources included in the control strategy, contains descriptions of the control measures, and provides effective dates. Source specific permitted allowable emission rates, compliance and monitoring obligations, reporting and recordkeeping requirements, and implementation deadlines (where not immediately effective upon permit issuance) are detailed in each construction permit included with the SIP submittal (appendix B of the state's nonattainment plan). The GPC control strategy includes measures at 52 emission points (EP) at the facility. In summary, those measures include EP0001.0 (Power House Boilers 1-4 and 6-7) is subject to a more stringent SO₂ emission limit based on natural gas combustion; EP546.0 is subject to a more stringent, source-specific SO₂ limit of .0034 lb/hr; a requirement to continue to add sodium bisulfate to the steep water instead of sulfur dioxide in order to reduce SO₂ emissions from the steeping operations and downstream processes; the establishment of source specific SO₂ emission limits at 43 EPs and the required installation of scrubbers on EP015.0 (Germ Drier Nos. 1 and 2), EP097.0 (Germ Drier No. 3), EP126.0 (Germ Drier No. 4), EP200N (Corn Steep Tank Nos. 1-30 and the North Wet Corn Drag), EP200S (Corn Steep Tank Nos. 31-62 and the South Wet Corn Drag), and

EP279.0 (Wet Milling Nos. 1-6). The state expects the installation of the scrubbers to reduce SO₂ emissions by up to 90 percent from those units.¹⁸

While the scrubber installations will not be completed by January 1, 2017, the desired target date discussed in EPA's April 2014 guidance, the scrubbers will be operational as expeditiously as practicable. Based on permitted requirements, three of the six new scrubbers must be in operation no later than August 30, 2017, with the final scrubber operational by March 31, 2018. The installation timetable accommodates factors such as demolition and construction schedules, structural modifications, ductwork design, and the addition of scrubber water treatment capacity. The state asserts in its nonattainment plan that the scrubber installation timeline will not delay or prevent timely attainment of the 1-hr SO₂ NAAQS.

It should also be noted that, on July 14, 2015, GPC converted all of its coal-fired boilers to natural gas. The state estimates that the fuel switch will result in a 96 percent reduction in the facility's total SO₂ emissions. In terms of 2011 data, this fuel switch eliminated 10,374 tons of SO₂ emissions. The state believes, and the EPA agrees, that the fuel conversion from coal to natural gas in GPC's boilers has significantly

¹⁸ The state's estimation of a 90 percent reduction in SO₂ emissions is based off of the control efficiency readily achieved by the types of scrubbers being installed.

reduced measured ambient SO₂ concentrations in Muscatine, as noted in Table 4. Based on existing air quality improvements the state projects that monitored attainment will be achieved by the attainment date. Appendix B of the state's nonattainment SIP contains the Federally enforceable air construction permits that define GPC's RACM/RACT requirements.

Table 4. Air Monitoring Data from the Musser Park Monitor

| | | Design Values (ppb) | | | | 99th Percentile Daily Max 1-hr SO ₂ Concentrations (ppb) | | | | | |
|------------------|----------------------------------|---------------------|-----------|-----------|-----------|---|------|------|------|------|------|
| Monitor Location | 1-hr SO ₂ NAAQS (ppb) | 2011-2013 | 2012-2014 | 2013-2015 | 2014-2016 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Musser Park | 75 | 217 | 194 | 158 | 113 | 248 | 224 | 179 | 180 | 116 | 45 |

MPW is subject to several Federal programs that directly or indirectly affect SO₂ emissions, including the Acid Rain provisions of title IV of the CAA, the Cross State Air Pollution Rule (CSAPR), and the CAA section 112 Maximum Achievable Control Technology regulations more commonly known as the Mercury and Air Toxics Standards. However, the state did not rely on these Federal programs alone to address SO₂ emissions. Instead, as per the states control strategy, MPW will comply with new SO₂ emission limits that provide for attainment of the NAAQS. The control measures, described in table 4-2 of the state's nonattainment SIP, account for seven possible operating

scenarios involving the three coal-fired boilers (Units 7, 8, and 9). Permit No. 74-A-175-S3, issued to the facility in 2013, shows the SO₂ emission limit for Units 7 and 8 was a combined maximum of 2,772 lb/hr. Permit No. 80-A-191-P2, issued to the facility in 2013, shows the SO₂ emission limit for Unit 9 was 0.56 lb/MMBtu (a maximum daily average). Permit No. 80-A-191-P4, issued to the facility in 2016 as part of the control strategy of the state's nonattainment SIP, shows the combined SO₂ emissions from Units 7-9 must be less than 1,153 lbs/hr.

The control strategy for MPW also addresses emission reductions from EP60 (Auxiliary Boiler). A permit issued to the facility in 2013, Permit No. 13-A-152, for the Auxiliary Boiler required that SO₂ emissions be limited to limited 0.44 lbs/MMBtu (expressed as the average of 3 runs) when burning fuel oil, and to 500 ppm by volume when burning natural gas or propane.^{19,20} The permit issued to the facility in 2016, as part of the control strategy, Permit No. 13-A-152-S1, requires that the SO₂ emissions be limited to 0.45 lb/hr and that the sulfur content of the distillate fuel oil combusted in the unit not exceed 15 ppm. Appendix C of the state's nonattainment SIP contains the

¹⁹ The unit's 0.44 lbs/MMBtu emission rate is a Lowest Achievable Emission Rate (LAER).

²⁰ The limit of 500 ppm by volume is from state rule

Federally enforceable air construction permits that define MPW's RACM/RACT requirements. These permits are effective January 1, 2017.

The control measures developed for Monsanto, described in table 4-3 of the state's nonattainment SIP, establish lower emission limits on two sources- EP-195 (Boiler #8) and EP-234 (CAC Process Flare). The Boiler #8 control strategy includes a more stringent SO₂ emission limit. A 2007 permit issued to the facility Permit No. 82-A-092-P9, limited the unit's SO₂ emissions to 292.5 lb/hr. The permit issued to the facility in 2015, Permit No. 82-A-092-P11, as part of the control strategy, limits the unit's SO₂ emissions to 273 lb/hr.²¹

The control strategy for the CAC Process Flare includes new SO₂ emission limit that restricts the unit's fuel use to natural gas only. A 2012 permit issued to the facility, Permit No. 88-A-001-S2, limited the unit's SO₂ emissions to 500 ppm by volume. The permit issued to the facility in 2015, Permit No. 88-A-001-S3, as part of the control strategy, limits the unit to burning only natural gas and the unit's SO₂ emissions to 0.02 lb/hr. Appendix D of the state's nonattainment SIP contains the

²¹ The unit also has a 1.95 lbs/MMBtu based on a 3-hr rolling average limit is a Best Available Control Technology limit.

Federally enforceable air construction permits that define Monsanto's RACM/RACT requirements. These permits are effective May 13, 2015.

The state has determined that these measures suffice to provide for attainment the attainment date, August 5, 2018. EPA concurs and proposes to conclude that the state has satisfied the requirement in CAA § 172(c)(1) to adopt and submit all RACM as needed to attain the standards as expeditiously as practicable.

C. Nonattainment New Source Review (NNSR)

Section 172(c)(5) requires that the state's nonattainment plan provisions shall require permits for the construction and operation of new or modified major stationary sources anywhere in the nonattainment area, in accordance with section CAA § 173. EPA approved the state's nonattainment new source review rules on May 15, 2014 (79 FR 27763). These rules provide for appropriate new source review for SO₂ sources undergoing construction or major modification in the Muscatine nonattainment area without need for modification of the approved rules. Therefore, EPA concludes that the requirements of CAA § 172(c)(5) have been met.

D. Reasonable Further Progress (RFP)

Section 172(c)(2) requires that nonattainment plans include provisions addressing reasonable further progress (RFP).

Reasonable further progress is defined in CAA § 171(1) as:

"...such annual incremental reductions in emissions of the relevant air pollutant as are required by this part [part D] or may reasonably be required by the Administrator for the purpose of ensuring attainment of the applicable national ambient air quality standard by the applicable date."

As discussed in EPA's April 2014 guidance, this definition is most appropriate for pollutants that are emitted by numerous and diverse sources, where the relationship between any individual source and overall air quality is not explicitly quantified, and where NAAQS attainment requires inventory-wide emissions reductions. The SO₂ NAAQS presents special circumstances because there are usually a limited number of well-defined sources affecting the area's air quality and any emission control measures commonly result in swift improvements that typically occur in one step. As noted in the state's nonattainment SIP, the EPA has interpreted that RFP is best construed as "adherence to an ambitious compliance schedule" in previous rulemaking.²²

²² See 74 FR 13547 (April 16, 1992).

As previously noted in section V.B. RACT/RACM, in this preamble, the SO₂ emission limits and application of control technologies established for Monsanto (effective on May 13, 2015), MPW (effective January 1, 2017) and for GPC occur on reasonable timelines.

The state asserts that this plan requires that affected sources implement appropriate control measures as expeditiously as practicable in order to ensure attainment of the standard by the applicable attainment date. The state concluded that its plan therefore provides for RFP in accordance with the approach to RFP described in EPA's guidance. EPA concurs and proposes to conclude that the plan provides for RFP as required by CAA § 172(c) (2) .

E. Contingency Measures

Section 172(c) (9) of the CAA requires that the state's nonattainment plan provide for the implementation of specific measures to be undertaken if the area fails to make reasonable further progress, or to attain the national primary ambient air quality standard by the attainment date applicable under this part. Such measures shall be included in the plan revision as contingency measures to take effect in any such case without further action by the State or the Administrator.

EPA's April 2014 guidance describes special features of SO₂ planning that influence the suitability of alternative means of

addressing the requirement in section 172(c)(9) for contingency measures for SO₂, such that in particular an appropriate means of satisfying this requirement is for the state to have a comprehensive enforcement program that identifies sources of violations of the SO₂ NAAQS and to undertake an aggressive follow-up for compliance and enforcement.

The state's nonattainment SIP provides that, after full implementation of the control strategy, contingency measures will be triggered if monitored ambient air quality records 1-hr SO₂ NAAQS violation in the nonattainment area, or if the nonattainment area fails to meet RFP. If triggered, the state will evaluate culpabilities for the violation and will plan to complete the investigation within 3 months of the trigger. Where the investigation concludes unequivocally that SO₂ emissions from one of the three sources in the control strategy is the cause of the recorded 1-hr SO₂ NAAQS violation or failure to achieve RFP, the state will conduct a compliance evaluation and establish orders for the abatement or control of air pollution or make changes to the GPC, MPW, or Monsanto construction permits. Orders or construction permits will be issued within approximately 9 months of completion of the investigation and could include fuel switches, addition of controls, curtailment of production, reducing boiler operating loads, or other appropriate measures necessary to mitigate the violation.

EPA proposes to approve the state's plan for meeting the contingency measure requirement of CAA § 172(c)(9).

VI. Additional Elements of the State's Submittal

A. Compliance with Section 110(a)(2) of the CAA

Section 172(c)(7) of the CAA requires nonattainment SIPs to meet the applicable provisions of CAA § 110(a)(2). While the provisions of 110(a)(2) address various topics, EPA's past determinations suggest that only the § 110(a)(2) criteria which are linked with a particular area's designation and classification are relevant to § 172(c)(7). This nonattainment SIP submittal satisfies all applicable CAA § 110(a)(2) criteria, as evidenced by the state's nonattainment new source review program which addresses 110(a)(2)(I), the included control strategy, and the associated emissions limits which are relevant to 110(a)(2)(A). In addition, on July 26, 2013, Iowa submitted to EPA an infrastructure SIP to demonstrate that the state has the necessary plans, programs, and statutory authority to implement the requirements of section 110 of the CAA as they pertain to the 2010 1-hr SO₂ NAAQS. EPA will take action on the state's SO₂ infrastructure SIP in a separate rulemaking. The EPA is proposing to conclude that the state has meet the requirements of CAA § 172(c)(7).

B. Equivalent Techniques

Section 172(c)(8) of the CAA states that upon application by any state, the Administrator may allow the use of equivalent modeling, emission inventory, and planning procedures, unless the Administrator determines that the proposed techniques are, in the aggregate, less effective than the methods specified by the Administrator.

The state's nonattainment SIP indicates that it followed existing regulations, guidance, and standard practices when conducting modeling, preparing the emissions inventories, and implementing its planning procedures. Therefore, the state did not use or request approval of alternative or equivalent techniques as allowed under of the CAA and the EPA is proposing to conclude that the state's nonattainment SIP meets the requirements of CAA § 172(c)(8).

VII. EPA's Proposed Action

The EPA is proposing to approve the nonattainment SIP submission, which the state submitted to EPA on May 26, 2016, for attaining the 2010 1-hour SO₂ NAAQS for the Muscatine nonattainment area and for meeting other nonattainment area planning requirements. This SO₂ attainment plan includes the state's attainment demonstration for the Muscatine nonattainment area. The nonattainment area plan also addresses requirements

for RFP, RACT/RACM, base-year and projection-year emission inventories, and contingency measures.

The EPA has determined that the state's nonattainment plan meets applicable requirements of the section 172 of the CAA (107(c)(1) through (9)). EPA's analysis is discussed in this proposed rulemaking.

The EPA is taking public comments for thirty days following the publication of this proposed action in the **Federal Register**. We will take all comments into consideration in our final action.

VIII. Incorporation by Reference

In this rule, EPA is proposing to include in a final EPA rule regulatory text that includes incorporation by reference. In accordance with requirements of 1 CFR 51.5, EPA is proposing to incorporate by reference the Iowa Regulations described in the amendments to 40 CFR part 52 set forth below. EPA has made, and will continue to make, these materials generally available through <https://www.regulations.gov> and/or at the EPA Region 7 Office (please contact the person identified in the "For Further Information Contact" section of this preamble for more information).

Therefore, these materials have been approved by EPA for inclusion in the State implementation plan, have been incorporated by reference by EPA into that plan, are fully

Federally enforceable under sections 110 and 113 of the CAA as of the effective date of the final rulemaking of EPA's approval, and will be incorporated by reference by the Director of the Federal Register in the next update to the SIP compilation.²³

IX. Statutory and Executive Order Reviews

Under the CAA, the Administrator is required to approve a SIP submission that complies with the provisions of the Act and applicable Federal regulations. 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, EPA's role is to approve state choices, provided that they meet the criteria of the CAA. Accordingly, this proposed action merely approves state law as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this proposed action:

- Is not a significant regulatory action subject to review by the Office of Management and Budget under Executive Orders 12866 (58 FR 51735, October 4, 1993) and 13563 (76 FR 3821, January 21, 2011);
- Does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*);

²³ 62 FR 27968 (May 22, 1997).

- Is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*);
- Does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Public Law 104-4);
- Does not have Federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- Is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
- Is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
- Is not subject to requirements of Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the CAA; and

- Does not provide EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally permissible methods, under Executive Order 12898 (59 FR 7629, February 16, 1994).

The SIP is not approved to apply on any Indian reservation land or in any other area where EPA or an Indian tribe has demonstrated that a tribe has jurisdiction. In those areas of Indian country, the rule does not have tribal implications and will not impose substantial direct costs on tribal governments or preempt tribal law as specified by Executive Order 13175 (65 FR 67249, November 9, 2000).

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control,
Incorporation by Reference, Intergovernmental relations,
Reporting and recordkeeping requirements, Sulfur oxides.

Dated: August 9, 2017.

Edward H. Chu,
Acting Regional Administrator,
Region 7.

For the reasons stated in the preamble, EPA proposes to amend 40 CFR part 52 as set forth below:

Part 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart Q—Iowa

2. Amend § 52.820 by:

a. In the table in paragraph (d), adding entries “(112)” through “(169)” in numerical order; and

b. In the table in paragraph (e), adding an entry “(47)” in numerical order.

The additions read as follows:

§ 52.820 (Identification of plan.

* * * * *

(d) * * *

EPA-APPROVED IOWA SOURCE-SPECIFIC ORDERS/PERMITS

| Name of source | | Order/permit No. | State effective date | EPA Approval date | Explanation |
|------------------------------------|-----------|------------------------|----------------------|---|--|
| | * * * * * | | | | |
| (112) Grain Processing Corporation | | Permit No. 95-A-374-S4 | 12/10/15 | [<u>date of final publication in the Federal Register</u>] and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL- |

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| | | | | | XXXX-Region 7]. |
| (113) Grain Processing Corporation | | Permit No. 15-A-078 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (114) Grain Processing Corporation | | Permit No. 79-A-194-S2 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (115) Grain Processing Corporation | | Permit No. 71-A-067-S4 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |

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| (116) Grain Processing Corporation | | Permit No. 75-A-087-S1 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (117) Grain Processing Corporation | | Permit No. 72-A-199-S2 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (118) Grain Processing Corporation | | Permit No. 74-A-014-S1 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (119) Grain Processing Corporation | | Permit No. 74-A-015-S2 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |

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| (120) Grain Processing Corporation | | Permit No. 75-A-353-S2 | 7/6/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (121) Grain Processing Corporation | | Permit No. 79-A-195-S2 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (122) Grain Processing Corporation | | Permit No. 80-A-149-S5 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (123) Grain Processing Corporation | | Permit No. 80-A-150-S5 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |

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| (124) Grain Processing Corporation | | Permit No. 85-A-031-S2 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (125) Grain Processing Corporation | | Permit No. 85-A-032-S2 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (126) Grain Processing Corporation | | Permit No. 85-A-038-P1 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (127) Grain Processing Corporation | | Permit No. 85-A-135-P1 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |

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| (128) Grain Processing Corporation | | Permit No. 90-A-111-S1 | 7/6/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (129) Grain Processing Corporation | | Permit No. 91-A-068-S2 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (130) Grain Processing Corporation | | Permit No. 93-A-110-P1 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (131) Grain Processing Corporation | | Permit No. 92-A-383-S2 | 7/6/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |

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| (132) Grain Processing Corporation | | Permit No. 92-A-385-S1 | 7/6/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (133) Grain Processing Corporation | | Permit No. 94-A-055-S1 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (134) Grain Processing Corporation | | Permit No. 94-A-061-S1 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (135) Grain Processing Corporation | | Permit No. 02-A-781-S2 | 7/6/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |

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| (136) Grain Processing Corporation | | Permit No. 02-A-782-S2 | 7/6/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (137) Grain Processing Corporation | | Permit No. 09-A-482-S2 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (138) Grain Processing Corporation | | Permit No. 10-A-563-S1 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7].. |
| (139) Grain Processing Corporation | | Permit No. 15-A-200 | 3/25/16 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |

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| (140) Grain Processing Corporation | | Permit No. 15-A-201 | 3/25/16 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (141) Grain Processing Corporation | | Permit No. 15-A-202 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (142) Grain Processing Corporation | | Permit No. 15-A-203 | 2/15/16 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (143) Grain Processing Corporation | | Permit No. 15-A-204 | 2/15/16 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |

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| (144) Grain Processing Corporation | | Permit No. 15-A-205 | 2/15/16 | [<u>date of publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (145) Grain Processing Corporation | | Permit No. 15-A-206 | 2/15/16 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (146) Grain Processing Corporation | | Permit No. 15-A-207 | 2/15/16 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (147) Grain Processing Corporation | | Permit No. 15-A-208 | 12/10/15 | [<u>date of publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |

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| (148) Grain Processing Corporation | | Permit No. 15-A-209 | 12/10/15 | [<u>date of final publication in the Federal Register</u>] and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (149) Grain Processing Corporation | | Permit No. 15-A-480 | 2/15/16 | [<u>date of publication in the Federal Register</u>] and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (150) Grain Processing Corporation | | Permit No. 15-A-481 | 2/15/16 | [<u>date of final publication in the Federal Register</u>] and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (151) Grain Processing Corporation | | Permit No. 15-A-482 | 2/15/16 | [<u>date of final publication in the Federal Register</u>] and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |

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| (152) Grain Processing Corporation | | Permit No. 15-A-483 | 2/15/16 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (153) Grain Processing Corporation | | Permit No. 15-A-213 | 1/26/16 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (154) Grain Processing Corporation | | Permit No. 15-A-484 | 2/15/16 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (155) Grain Processing Corporation | | Permit No. 15-A-485 | 2/15/16 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |

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| (156) Grain Processing Corporation | | Permit No. 15-A-486 | 2/15/16 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (157) Grain Processing Corporation | | Permit No. 15-A-326 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (158) Grain Processing Corporation | | Permit No. 03-A-471-S1 | 7/6/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (159) Grain Processing Corporation | | Permit No. 05-A-926-S4 | 2/15/16 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |

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| (160) Grain Processing Corporation | | Permit No. 06-A-1261-S1 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (161) Grain Processing Corporation | | Permit No. 11-A-338-S1 | 7/6/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (162) Grain Processing Corporation | | Permit No. 15-A-354 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |
| (163) Grain Processing Corporation | | Permit No. 15-A-199 | 12/10/15 | [<u>date of final publication in the Federal Register</u> and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA-R07-OAR-2017-0416; FRL-XXXX-Region 7]. |

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| (164) Muscatine Power and Water | | Permit No. 13-A-152-S1 | 3/2/16 | [<u>date of final publication in the Federal Register</u>] and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA- R07-OAR-2017- 0416; FRL- XXXX-Region 7]. |
| (165) Muscatine Power and Water | | Permit No. 74-A-175-S4 | 3/2/16 | [<u>date of final publication in the Federal Register</u>] and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA- R07-OAR-2017- 0416; FRL- XXXX-Region 7]. |
| (166) Muscatine Power and Water | | Permit No. 95-A-373-P3 | 3/2/16 | [<u>date of final publication in the Federal Register</u>] and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA- R07-OAR-2017- 0416; FRL- XXXX-Region 7]. |
| (167) Muscatine Power and Water | | Permit No. 80-A-191-P3 | 3/2/16 | [<u>date of final publication in the Federal Register</u>] and [<u>Federal Register citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA- R07-OAR-2017- 0416; FRL- XXXX-Region 7]. |

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| (168) Monsanto | | Permit No. 82-A-092-P11 | 5/13/15 | [<u>date of</u> <u>final</u> <u>publication</u> <u>in the</u> <u>Federal</u> <u>Register</u>] and [<u>Federal</u> <u>Register</u> <u>citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA- R07-OAR-2017- 0416; FRL- XXXX-Region 7]. |
| (169) Monsanto | | Permit No. 88-A-001-S3 | 5/13/15 | [<u>date of</u> <u>final</u> <u>publication</u> <u>in the</u> <u>Federal</u> <u>Register</u>] and [<u>Federal</u> <u>Register</u> <u>citation</u>] | 2010 1-hr SO ₂ NAAQ Nonattainment Plan; Condition 6 of the permit is not part of the SIP; EPA- R07-OAR-2017- 0416; FRL- XXXX-Region 7]. |

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EPA-Approved Iowa NONREGULATORY PROVISIONS

| Name of nonregulatory SIP provision | Applicable geographic or nonattainment area | State submittal date | EPA Approval date | Explanation |
|---|--|----------------------------|---|--|
| * * * * * | | | | |
| (47) 2010 1- hr SO ₂ National Ambient Air Quality Standard Nonattainment Plan | A portion of Muscatine County | 5/26/16 | [<u>date of</u> <u>final</u> <u>publication</u> <u>in the</u> <u>Federal</u> <u>Register</u>] and [<u>Federal</u> <u>Register</u> <u>citation</u>] | EPA-R07-OAR-2017- 0416; FRL-XXXX- Region 7]. |

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